

Proposed by: F.R. Moormann, et al-1963
 Revised by: 1. P. Hemsrichart, 1988
 B. Boonsompophan,
 2. S. Sukchan,
 K. Malairotsiri, 2004

SI THON SERIES

Field Symbol: St

Distribution: Occupies small extent in the Northeast Thailand.

Setting: Si Thon soils are formed from alluvium and occur on the valley flats of streams. Relief is level to nearly level which range of slope is less than 2 percent. Elevation above sea level is from 140 m up to 160 m. The climate is Tropical Savanna (Köppen 'Aw'). Average annual precipitation is from 1,100 to 1,500 mm. Mean annual air temperature is around 26 to 30°C.

Drainage, Permeability and Runoff: Somewhat poorly drained soils. Permeability is moderate. Surface runoff is slow. Soils of this series are flooded by overflow stream water and by impounded rain water up to 50 cm deep. Ground water table during the peak of the dry season is at some depth below 2 m of the surface.

Vegetation and Land Use: Used for transplanted rice in the wet season and for some upland crops and vegetables in the dry season.

Characteristic Profile Features: The Si Thon series is a member of the coarse-loamy, mixed, non acid, isohyperthermic, Fluvaquentic Endoaquepts. They are deep and stratified soils which are characterized by a dark brown, brown, pale brown or light brown sandy loam or loamy sand A horizon overlying a pinkish gray or grayish brown stratified clayey and sandy materials of the cambic B and C horizons. These soils are mottled throughout the profile with colors of yellowish red, brownish and/or yellowish and some dark brown mottles. Reaction is strongly acid to medium acid over medium acid to slightly acid.

Typifying Pedon: . Profile code no. is NE-N-32/15 (moist color unless otherwise stated).

Location: Pilot farm project Huai Si Thon, Amphoe Mueang Changwat Kalasin.

Sheet Name: Changwat Kalasin

Sheet No.: 5741 IV

Coordinate:

Elevation: 140-160 m

Relief: level to nearly level

Slope: <2%

Physiography: lower part (depression) of peneplain

Parent material: alluvium

Drainage: somewhat poorly drained

Permeability: slow

Runoff: slow

Ground water depth: >2 m

Flooding depth: 50 cm

Duration: -

Frequency: -

Annual rainfall: 1,415 mm

Mean temp: 26.7 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: transplanted rice, some upland crops & vegetables in the dry season

Described by: C. Manotham N. Sanmongkol

Date: 25 December 1969

Horizon	Depth (cm)	Description
Ap	0-14	Pale brown (10YR 6/3) fine sandy loam; common fine, medium and few coarse reddish yellow (7.5YR 6/8) mottled; moderate fine and medium subangular blocky structures; friable, slightly sticky, nonplastic; many fine interstitial and few medium tubular pores; many fine roots; strongly acid (field pH 5.5); clear, smooth boundary.
AB	14-27	Brown (10YR 5/3) silty loam; many fine dark yellowish brown (10YR 4/4) mottled; moderate fine and medium subangular blocky structures; friable, nonsticky, nonplastic; many fine interstitial and tubular pores; many fine roots; a thin layer of fine sand extend along horizon can be observed; strongly acid (field pH 5.5) clear, smooth boundary.

Bw1	27-47	Grayish brown (10YR 5/2) loam; many fine dark brown to brown (7.5YR 4/4) mottled; slightly strong fine and medium subangular blocky structure; friable, nonsticky, slightly plastic; many fine interstitial and few medium tubular pores; few fine roots; strongly acid (field pH 5.5); clear, smooth boundary.
Bw2	47-60	Grayish brown (10YR 5/2) sandy loam, common fine dark brown to brown (7.5YR 4/4) mottled; moderate fine and medium subangular blocky structures; friable, slightly sticky, slightly plastic; many fine interstitial, many medium and coarse tubular pores; thin clay film along holes; few fine roots; medium acid (field pH 6.0); clear, smooth boundary.
C1	60-82	Very pale brown (10YR 7/4) sandy loam; common coarse yellowish brown (10YR 5/8) mottled; weak fine and medium subangular blocky structures; friable, slightly sticky, nonplastic; many fine interstitial pores; common medium and coarse iron-manganese concretions; medium acid (field pH 6.0); gradual, smooth boundary.
C2	82-100	Very pale brown (10YR 7/4) sandy loam; common fine and medium faint yellowish brown (10YR 5/6) mottled; weak fine subangular blocky structures; friable, nonsticky, nonplastic; many fine interstitial and tubular pores; strongly acid (field pH 5.5).

Type Location: The Si Thon series was named for a stream in which soils of this series were first described near by the Huai Si Thon Reservoir, Amphoe Mueang, Changwat Kalasin.

Range of Profile Features:

The thickness of A horizon varies from 10 to 30 cm and has 10YR or 7.5YR hues, values of 4 to 6 and chromas of 2 to 4. Textures of loam or silt loam may occur in places. Structure is weak to moderate medium and/or coarse blocky. Field pH value is from 5.5 to 6.5.

The subsoil (Bw and C horizon) has 10YR or 7.5YR hues, values of 5 to 7 and chromas mainly of 2 or less. Texture is variable due to the stratification, but usually consist of the layer of clayey material alternating with sandy or loamy materials. Structure is moderate medium and/or coarse blocky. Iron-manganese concretion may occur in the subsoil. Field pH value varies from 5.5 to 6.5.

Similar Soil Series:

Udon series (Ud): is a stratified soil, but contain high soluble salts and classified as Typic Halaquepts.

Principal Associated soils: These include Roi Et, and Ubon soils.

ANALYSIS RESULTS Profile code no.:NE-N-32/15
(oven dry basis) Soil series : Si Thon (St)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO ₃ %	P, mg kg ⁻¹ Bray 2	K, mg kg ⁻¹ NH ₄ OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim ¹	water	KCl			
Pa-157	0-14	Ap	51.0	30.0	19.0						sl	sl	5.3	4.3	0.0	2.5	21
Pa-158	14-27	AB	28.5	54.5	17.0						sil	sil	5.6	4.3	0.2	1.9	30
Pa-159	27-47	Bw1	36.0	44.0	20.0						lap	lap	5.5	4.1	0.6	1.9	24
Pa-160	47-60	Bw2	56.5	30.0	13.5						sl	sl	6.1	4.5	0.2	1.8	13
Pa-161	60-82	C1	66.0	21.5	12.5						sl	sl	6.2	4.7	0.3	1.8	10
Pa-162	82-100	C2	68.0	22.0	10.0						sl	sl	6.6	4.6	0.4	1.9	10

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹)										Base satur ⁿ (%)		ECEC cmol ₍₊₎ kg ⁻¹ (B+D)	Al KCl extr. cmol ₍₊₎ kg ⁻¹ (D)	Electrical conduct ^y (ECx10 ⁶) dS m ⁻¹
				Ca		Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH ₄ OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/(B+A)			
0-14	0.8	0.29		1.30	0.30	0.10	0.20	1.90	2.30	4.20	2.80	14.7	68	45			0.02	
14-27	0.6	0.17		3.00	0.30	0.10	0.20	3.60	2.20	5.80	4.70	27.6	77	62			0.02	
27-47	0.8	0.18		3.20	0.30	0.10	0.20	3.80	3.00	6.80	5.50	27.5	69	56			0.02	
47-60	1.1	0.04		1.40	0.10	0.10	0.20	1.80	0.80	2.60	2.10	15.6	86	69			0.02	
60-82	1.0	0.02		0.90	0.10	0.10	0.20	1.30	0.10	1.40	1.50	12.0	87	93			0.02	
82-100	0.1	0.02		0.50	0.10	0.03	0.20	0.83	0.20	1.03	0.60	6.0	100	81			0.03	