

Proposed by: V. Thunduan, 1970  
Revised by:  
1. N. Chorphaka, 1988  
2. P. Wiwatwongwana, 2004

**SI THEP SERIES**

**Field Symbol: Sri**

**Distribution:** Occupies moderate extent in the Central Highlands.

**Setting:** Si Thep soils are formed from alluvium and occur on low terraces with level relief and less than 2% slope. Elevation ranges from 60 to 90 m above sea level. The climate is Tropical climate is Tropical Savanna (Koppen `Aw'). Mean annual precipitation ranges from 1,100 to 1,600 mm.

**Drainage, Permeability and Runoff:** Poorly drained. Permeability is moderate. Runoff is slow. Flooded by impounded rain water and occasionally by stream water up to 30 cm depth for about four months during the rainy season. Groundwater level falls below 1.5 m from the soil surface during the peak of the dry season.

**Vegetation and Land Use:** Mostly secondary dipterocarp forest some areas are cleared for rice plantation.

**Characteristic Profile Features:** Si Thep series is member of the fine-silty, mixed, subactive isohyperthermic Plinthic Paleaquults. They are deep soils and are characterized by a grayish brown or dark grayish brown or loam or silt loam A horizon with brown and yellowish brown and/or dark brown mottles overlying a pinkish gray or light brownish gray clay loam or silty clay loam argillic B horizon with many distinct strong brown, reddish yellow or yellowish red mottles. Quantities of iron stone nodules are usually present in the subsoil. Reaction is slightly to medium acid in the surface and strongly to very strongly acid in the subsoil.

**Typifying Pedon:** Profile code no. is NC-47/89 (Type Location) (Moist colors unless otherwise stated).

**Location:** Ban Na Sanun, Amphoe Wichian Buri Changwat Petchabun.

**Sheet Name:** Amphoe Wichian Buri

**Sheet No.:** 5240 III

**Coordinate:** 318208

**Elevation:** 76 m (MSL)

**Relief:** level

**Slope:** 0-1%

**Physiography:** terraces

**Parent material:** alluvium

**Drainage:** poorly drained

**Permeability:** moderate

**Runoff:** slow

**Ground water depth:** >1.5 m

**Flooding depth:** -

**Duration:** -

**Frequency:** -

**Annual rainfall:** 1,208.9 mm

**Mean temp.:** 27.8 °C

**Climate type:** Tropical Savannah (Aw)

**Natural vegetation or land use:** dipterocarp forest

**Described by:** V. Thunduan and D. Muklai

**Date:** March, 1970

**Revised by:** Phusit Wiwatwongwana

**Date:** 25 May, 2004

Horizon	Depth (cm)	Description
A	0-6	Grayish brown (10YR5/2) silt loam; few fine faint dark yellowish brown mottles; moderate fine and medium subangular blocky structure; slightly hard, slightly sticky, slightly plastic; very fine and fine and fine roots; moderately acid (field pH 6.0); clear, smooth boundary.
ABg	6-16	Pinkish gray (7.5YR7/2) silt loam; common fine and medium yellow mottles; weak medium to coarse subangular blocky structure; slightly hard, sticky, plastic; common very fine to fine roots; very strongly acid (field pH 5.0); clear, smooth boundary.
Btg1	16-30	Pinkish gray (7.5YR7/2) silt loam; many fine to medium distinct reddish yellow mottles; weak medium subangular blocky; structure; slightly hard,

		sticky, plastic; few fine roots; very strongly acid (field pH 4.5); gradual, smooth boundary.
Btg2	30-47	Pinkish gray (7.5YR6/2-7/2) silt loam; many coarse distinct strong brown and yellowish red mottles; weak medium subangular blocky structure; hard, sticky, plastic; few very fine and medium roots; very strongly acid (field pH 4.5); clear, smooth boundary.
Btg3	47-77	Pinkish gray (7.5YR6/2) silty clay loam; many coarse distinct strong brown mottles; moderate medium subangular blocky structure; slightly firm, sticky, plastic; broken thin cutans on ped faces; few small soft, irregular red and black iron stone nodules; few very fine roots; very strongly acid (field pH 4.5); gradual, smooth boundary.
Btgv	77-112+	Pinkish gray (7.5YR7/2); gravelly clay loam (forming 5YR5/8 laterite); moderate medium subangular blocky structure; slightly friable, sticky, plastic; broken thin cutans on some ped faces; many small soft and hard irregular red and black ironstone nodules; few very fine roots; very strongly acid (field pH 4.5).

#### **Range of Profile Features:**

The A horizon ranges from 5 to 15 cm in thickness and has hues of 10YR, values of 4 to 6 and chromas of 2 to 3.

The A horizon may be free of mottles, with colours of brown or dark brown.

The B horizon has hues of 10YR to 5YR, but normal 7.5YR, values of 6 to 7 and chromas of 2 or less. Silty clay textures may occur in the deeper subsoil.

The pH values are 5.0 to 6.5 over 4.5 to 5.5. Weak to moderate blocky structure occurs throughout the profile but they are fine are fine and medium in the A horizon and medium and coarse in the B horizon. Clay coatings are moderately developed in the argillic B horizon.

#### **Similar Soil Series:**

Lampang series (Lp): is Endoaqualfs.

Chiang Rai series (Cr): has dominant red mottles in the argillic B horizon and is a member of the fine family.

Roi Et series (Re): has higher sand fraction throughout the profile.

#### **Principal Associated Soils:**

Si Thep series are associated with Lom Kao and Hang Dong series occupying slightly lower positions on the alluvial Plain.

**ANALYSIS RESULTS**  
(oven dry basis)

Profile code no.: NC-47/89  
Soil series: Si Thep (Sri)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO <sub>3</sub> %	P, mg kg <sup>-1</sup> Bray 2	K, mg kg <sup>-1</sup> NH <sub>4</sub> OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim <sup>n</sup>	water	KCl			
Pa-537	0-6	A	20.0	74.0	6.0						sil	sil	5.9	4.6	0.4	5.1	45
Pa-538	6-16	ABg	26.0	66.0	8.0						sil	sil	5.0	4.0	0.3	2.6	21
Pa-539	16-30	Btg1	31.0	56.0	13.0						sil	sil	5.3	3.8	0.6	2.9	24
Pa-540	30-47	Btg2	28.0	55.0	17.0						sil	sil	5.1	3.8	0.0	2.5	16
Pa-541	47-77	Btg3	19.0	53.0	28.0						sicl	sicl	5.1	3.6	1.0	3.4	24
Pa-542	77-112+	Btgv	24.0	44.0	32.0						cl	gcl	5.5	3.8	0.3	3.4	24

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol <sub>(c)</sub> kg <sup>-1</sup> )										Base satur <sup>n</sup> (%)		ECEC cmol <sub>(c)</sub> kg <sup>-1</sup> (B+D)	Al KCl extr. cmol <sub>(c)</sub> kg <sup>-1</sup> (D)	Electrical conduct <sup>y</sup> (ECx10 <sup>6</sup> ) dS m <sup>-1</sup>
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH <sub>4</sub> OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/(B+A)				
				0-6	0.5	0.97		1.70	0.40	0.10	0.20	2.40	4.60	7.00	4.0			
6-16	0.4	0.21		0.40	0.10	0.03	0.20	0.73	4.60	5.33	3.1	38.8	24	14			0.02	
16-30	0.7	0.09		0.20	0.04	0.02	0.20	0.46	5.00	5.46	2.8	21.5	16	8			0.01	
30-47	0.5	0.07		0.20	0.04	0.02	0.20	0.46	4.30	4.76	3.6	21.2	13	10			0.02	
47-77	1.3	0.08		0.20	0.02	0.03	0.20	0.45	11.30	11.75	7.1	25.4	6	4			0.01	
77-112+	1.6	0.08		0.30	0.10	0.04	0.20	0.64	9.80	10.44	10.6	33.1	6	6			0.02	

Surveyor: V. Thunduan and D. Muklai

Date: March, 1970