

Proposed by S. Charoenphong, 1970  
Revised by:  
P. Vijarnsorn and staffs, 1988  
W. Sirichuaychoo, 2004

## THA SAE SERIES

Field Symbol: Te

**Distribution:** Occupies a small extent in Peninsular Thailand and some areas in Southeast Coast of Thailand.

**Setting:** Tha Sae soils derived from coarse grain clastic rock namely sandstone and equivalent rocks and occurred on denudation surface. Relief is gently undulating to undulating. Slope ranges from 2 to 12 percent. Elevation ranges from 20 to 40 m above mean sea level. The climate is Tropical Rain Forest (Koppen 'Af') or Tropical Monsoon (Koppen 'Am'). Average air temperature is from 26 °C to 28°C. Average annual precipitation is from 1,800 to 3,000 mm.

**Drainage, Permeability and Surface Runoff:** Drainage is well drained, permeability is estimated to be moderate and surface runoff is rapid.

**Vegetation and Land Use:** Originally under Tropical Evergreen Forest. Most parts are used for para rubber, fruit trees and upland crops growing.

**Characteristic Profile Features:** Tha Sae series is a member of the fine-loamy, kaolinitic, isohyperthermic Typic Kandiodults (soil taxonomy, 2003). They are very deep soils and are characterized by a very dark brown or brown sandy loam surface or A horizon overlying a strong brown or yellowish brown sandy clay loam kandic B horizon. Very strongly acid to strongly acid, reaction range from 4.5 to 5.5 with slightly decreasing with depth.

**Typifying Pedon:** Tha Sae sandy loam - upland rice field, from Chumphon Agricultural College, Amphoe Sawi, Changwat Chumphon, 20 m above mean sea level, 2 to 5 percent slopes.

**Profile Code Number:** S-58/3, described by Pisoot Vijarnsorn, 30 September 1969 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
Ap	0-21	Dark brown to brown (10YR4/3) fine sandy loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; few fine interstitial pores; many fine roots; slightly acid (field pH 6.5); abrupt smooth boundary.
Bt1	21-50	Yellowish brown (10YR5/6) fine sandy clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine interstitial pores and few discontinuous, opened random tubular pores; few fine roots; moderately acid (field pH 6.0); gradual smooth boundary.
Bt2	50-67	Yellowish brown (10YR5/8) fine sandy clay loam; weak fine and medium subangular blocky structure; friable, sticky and slightly plastic; patchy thin cutan along the animal holes and discontinuous patchy thin around peds surface; many fine interstitial pores and few discontinuous, opened random tubular pores; very few fine roots; strongly acid (field pH 5.5); gradual smooth boundary.
Bt3	67-100	Strong brown (7.5YR5/8) sandy clay loam; weak fine and medium subangular blocky structure; friable, sticky and slightly plastic; patchy thin cutan along peds surface; many fine interstitial pores and few discontinuous opened random tubular pores; strongly acid (field pH 5.5).

### Typic Location:

Name of district, Amphoe Tha Sae, Changwat Chumphon.

### Range of Profile Features:

The surface or A horizon sandy loam ranges from 10 to 20 cm in thickness and has 10YR or 7.5YR hues, values 3 or 4 and chromas 2 to 4. Soil texture may be or sandy clay loam with

weak fine subangular blocky structure. Very strongly acid to moderately acid, reaction values range from 4.5 to 6.0.

The kandic B horizon sandy clay loam has 7.5YR or 10YR hues, values 5 or 6 and chromas 6 or 8. Sandy clay may occur in lower argillic B at approximately below 80 cm from the soil surface and an average of clay content in the control section must not exceed 35 percent. The soil structure weak and moderate fine and medium subangular blocky structure. Few fine faint mottles may occur in lower argillic B horizon. Very strongly acid to strongly acid, reaction values range from 5.0 to 5.5.

**Similar soil Series:**

Satuk series (Suk): fine-loamy, kaolinitic, isohyperthermic Typic Kandiuults, ustic moisture regime.

Kho Hong series (Kh): coarse-loamy, kaolinitic, isohyperthermic Typic Kandiuults.

Khlong Thom series (Km): fine-loamy, kaolinitic, isohyperthermic Typic Kandiuults, redder in lower argillic B.

**Principal Associated Soil:**

These include Kho Hong and Khlong Thom series. They are formed on the physiographic position which one usually found these soils in association.

**ANALYSIS RESULTS**

Profile code No.: S-58/3

(oven dry basis)

Soil series: Tha Sae series (Te)

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 result	Field estim <sup>n</sup>	1:1 water	1:1 KCl			
			sand	silt	clay	vc	c	m	f	vf							
P-1618	0-21	A	80.5	6.5	13.0						sl	sl	4.8	4.0	0.4	2.4	33
P-1619	21-50	Bt1	58.0	23.0	19.0						sl	scl	4.5	3.8	0.3	1.8	16
P-1620	50-67	Bt2	55.0	20.0	25.0						scl	scl	3.8	3.5	0.3	1.4	13
P-1621	67-100	Bt3	53.5	18.0	28.5						scl	scl	4.2	3.4	0.3	1.4	13

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> (ECx10 <sup>6</sup> ) (D)	Electrical conductivity (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)				
				Ca	Mg	K	Na											
0-21	0.7	0.81	0.08	0.40	0.30	0.10	0.10	0.90	7.40	8.30	4.8	36.9	19	11			0.03	
21-50	0.7	0.21	0.03	0.20	0.10	0.04	0.10	0.44	4.30	4.74	3.5	18.4	13	9			0.01	
50-67	0.6	0.11	0.03	0.10	0.20	0.03	0.10	0.43	5.10	5.53	4.0	16.0	11	8			0.04	
67-100	0.7	0.10	0.03	0.20	0.20	0.03	0.10	0.53	6.30	6.83	4.2	14.7	13	8			0.04	

Surveyor: P. Vijarnsorn

Reported by: W. Sirichuaychoo

Date: Sept. 30, 1969

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