

Proposed by P. Vijarnsorn, 1968
 Revised by :
 P. Vijarnsorn and staffs, 1988
 W. Sirichuaychoo, 2004

THON SAI SERIES

Field Symbol: Ts

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

Setting: Thon Sai soils are formed from marine sand sediment and occurred on coastal plain (depressed areas between old beach and dune ridges). Relief is level or nearly level. Elevation ranges from 5 to 10 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am'). Average annual precipitation is from 1,800 to 3,000 mm. Average annual air temperature is from 26°C to 28°C.

Drainage, Permeability and Surface Runoff: Drainage is very poorly drained, permeability is estimated to be slow and surface runoff is slow. Flooded by rainwater and runoff water from peat bogs during the rainy season up to 1 meter.

Vegetation and Land Use: Some areas are used for transplanted rice but many areas are abandoned and revert to wild grasses, marsh grass and reeds which are used for natural pasture is the dry season.

Characteristic Profile Features: Thon Sai series is member of the a fine-loamy, mixed, semiactive, acid, isohyperthermic Sulfic Endoaquepts (soil taxonomy, 2003). They are very deep soils and are characterized by a dark brown, dark grayish brown or very dark grayish brown sandy loam surface or A horizon overlying a light gray or light brownish gray sandy clay loam stratified C horizon. Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5 over strongly acid to moderately acid, reaction values range from 5.5 to 6.0.

Typifying Pedon: Thon Sai sandy loam - pasture, Ban Pikun Thong, Tambon Kaluwao, Amphoe Muang, Changwat Narathiwat, less than 2 m above mean sea level, 10 to 50 cm flooding depth, 1 meter ground water table depth.

Profile Code Number: S-71/26, described by K. Busayamanon, 22 March 1982 (moist colors unless otherwise stated).

Horizon Depth (cm)	Description
Apg 0-15	Very dark gray (10YR3/1) sandy loam; common fine faint dark yellowish brown (10YR4/4) mottles along roots channels; weak fine crumb structure; friable, slightly sticky and nonplastic; many and common medium roots; very strongly acid (field pH 5.0); gradual smooth boundary.
ABg 15-32	Very dark grayish brown (10YR3/2) sandy clay loam; common fine faint dark yellowish brown (10YR4/6) mottles along roots channels; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine roots; strongly acid (field pH 5.5); clear smooth boundary.
Bg 32-78	Light brownish gray (2.5Y6/2) sandy clay loam; many fine prominent strong brown (7.5YR5/8) and common fine prominent yellowish brown (10YR5/6) mottles along roots channels; weak medium and coarse subangular blocky structure; friable, slightly sticky and slightly plastic; few acid (field pH 5.0); gradual smooth boundary.
Cg1 78-135	Mixed light brownish gray (10YR6/2) and brown (7.5YR5/2) sandy clay loam; common fine distinct dark yellowish brown (10YR4/6) and few fine distinct strong brown (7.5YR5/6) mottles along roots channels; weak subangular blocky structure; friable, slightly sticky and slightly plastic; strongly acid (field pH 5.5); clear smooth boundary.
Cg2 135-180	Greenish gray (5G6/1) sandy clay loam; massive; slightly sticky and slightly plastic; few fine peat; moderately acid (field pH 6.0).

Type Location:

Name of village, Ban Thon Sai, Amphoe Bacho, Changwat Narathiwat.

Range of Profile Features:

The surface or A horizon sandy loam, is 10 to 15 cm in thickness. Moist has 10YR hues, values 2 or 3 and chromas 1 to 3. Texture of clay loam to sandy clay loam may occurred. The structure is weak coarse blocky and crumb structure may occur in the uppermost layer. Very strongly acid, reaction values range from 4.5 and 5.0.

The stratified C horizon sandy clay, sandy loam or clay textures with the average clay content in the control section ranging from 18 to 35 percent. Moist values 6 or 7 and chromas 1 or 2 in hue 10YR. The structure is weak medium blocky to structureless. Yellowish brown mottles may occur in this horizon. Visible mica flakes may occur throughout the profile. Very strongly acid, reaction values range from 4.5 and 5.0.

Similar Soil series:

Ra-ngae series (Ra): very-fine, mixed, superactive, acid, isohyperthermic Sulfic Endoaquepts.

Principal Associated Soils:

These include Bacho, Ban Thon, Kab Daeng and Narathiwat series. Ban Thon and Bacho soils are sandy and occur on old beaches and dune ridges. Kab Daeng and Narathiwat series is an organic soil and occurs on lower positions of backswamp.

Bacho series (Bc): isohyperthermic, coated Typic Quartzipsamments.

Ban Thon series (Bh): sandy, siliceous, superactive, isohyperthermic, ortstein Typic Haplorthods.

Kab Daeng series (Kd): loamy, mixed, superactive, dysic, isohyperthermic Terric Sulfihemists.

Narathiwat series (Nw): dysic, isohyperthermic Typic Haplofibrists.

ANALYSIS RESULTS

Profile code No.: S-71/26

(oven dry basis)

Soil series: Thon Sai series (Ts)

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 water	1:1 KCl			
			sand	silt	clay	vc	c	m	f	vf	result	estim ⁿ						
5-515341	0-15	Apg	47.8	27.5	24.7	0.2	0.3	2.9	32.3	12.1	scl	sl	4.5	3.3		20.9	67	
5-515342	15-32	ABg	51.7	23.6	24.7	0.1	0.3	3.5	35.2	12.6	scl	scl	4.2	3.7		11.9	31	
5-515343	32-78	Bg	61.7	15.4	22.9	0.1	0.2	3.4	43.3	14.7	scl	scl	4.3	3.7		4.4	25	
5-515344	78-135	Cg1	66.5	17.9	15.6	0.1	0.4	6.5	49.0	10.5	sl	scl	2.8	2.5		4.4	7	
5-515345	135-180	Cg2	66.8	14.5	18.7	0.1	0.2	4.4	48.5	13.6	sl	scl	3.6	3.1		2.8	26	

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
								SUM	Extr.	SUM	CEC	CEC	B/Cx100	(Bx100)				
				Ca	Mg	K	Na	cations (B)	acidity (A)	(B+A)	NH ₄ OAc (C)	100g Clay		(B+A)				
0-15	3.9	7.03		1.40	1.60	0.20	1.10	4.30	32.20	36.50	19.8	80.2	22	12			0.76	
15-32	3.1	6.14		0.50	0.50	0.10	0.40	1.50	24.10	25.60	13.1	53.0	11	6			0.19	
32-78	1.5	0.87		0.40	0.60	0.10	0.40	1.50	7.10	8.60	5.0	21.8	30	17			0.17	
78-135	1.4	0.59		0.40	0.90	0.03	0.20	1.53	17.70	19.23	3.5	22.4	44	8			2.60	
135-180	1.3	0.20		0.30	0.60	0.10	0.40	1.40	4.20	5.60	3.3	17.6	42	25			0.42	

Surveyor: K. Busayamanon

Reported by: W. Sirichuaychoo

Date: March 22, 1982

Date: Dec. 5, 1998