

Proposed by W. Van der Kevie, 1971
Revised by:
1. C. Changprai, 1987
2. S. Udomsri, 2004

THANYABURI SERIES

Field Symbol: Tan

Distribution: Occupies moderate extent in the southeastern part of the Central Plain.

Setting: Thanyaburi soils are formed from marine sediments mixed with riverine alluvium under brackish water influence. They occur in former tidal flats or alluvium plain which grade down to marine deposits and now free of tidal flooding which have been in cultivation for some time. Relief is flat. Slope is about 0-1%. Elevation ranges from 1-2 m above sea level. The climate is Tropical Savanna (Köppen 'Aw'). Mean annual precipitation is about 1,400 mm. Mean annual temperature is 27°C.

Drainage, Permeability and Surface Runoff: Poorly drained. Runoff and permeability are slow. Deep surface flooding to depths of 1 m or more from river water or rain occurs for about four to five months during the rainy season. Sometimes this area flooded by irrigation. The groundwater level falls to about 100 cm during the peak of the dry season and the soil cracks.

Vegetation and Land Use: Mainly used for broadcast rice cultivation.

Characteristic Profile Features: Thanyaburi series is a member of the Very-fine, mixed, semiactive, acid, isohyperthermic Sulfic Endoaquepts. They are deep, extremely acid soils and are characterized by a black or very dark gray clay A horizon overlying a grayish brown or light brownish gray clay B horizon, which in turn overlies a gray or dark gray reduced clay C horizon below approximately 150 cm from the soil surface. These soils are mottles throughout with strong brown and yellowish red coating along root channels in the A horizon, and predominantly brownish yellow, reddish yellow mottles in the B horizon. The presence of yellow jarosite mottles approximately between 50-100 cm of the soil surface is diagnostic for the series. Pressure faces and slickensides occur in the B horizon and the soil cracks at the surface when dry.

Typifying Pedon: Profile code number is 1

Location: Ban Khlong Hok, Amphoe Thanyaburi Changwat Pathum Thani..

Sheet Name: Changwat Pathum Thani **SheetNo.:** 5137 III

Coordinate: -

Elevation: 2 m MSL.

Relief: level to nearly level

Slope: 0-1%

Physiography: former tidal flats or alluvium plain

Parent material: marine sediments mixed with riverine alluvium under brackish water influence

Drainage: poorly drained

Permeability: slow

Runoff: slow

Ground water depth: 2 m

Flooding depth: 100 cm

Duration: 6-7 month

Frequency: every year

Annual rainfall: 1,244.2 mm

Mean temp: 27.9 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: abandoned paddy field

Other:

Described by: S. Panichapong & P. Vijarnsorn

Date: 21 January, 1981

Revised by: S. Udomsri

Horizon	Depth (cm)	Description
Apg1	0-7	Dark Grayish brown (10YR4/2) clay; many fine prominent yellowish red (5YR5/8) mottles along root channels; weak fine subangular blocky structure; extremely hard, very firm, very sticky, very plastic; many fibrous roots; very strongly acid (field pH4.5); clear, smooth boundary.

Apg2	7-22	Dark gray to very dark gray (10YR3-4/1); clay; common fine distinct yellowish brown (10YR5/6) mottles along cracks; weak coarse blocky structure; extremely hard, very firm, very sticky, very plastic; common fine roots; extremely acid (field pH 4.0-4.5); gradual, smooth boundary.
Bg	22-40	Very dark grayish brown (10YR3/2) or dark brown (7.5YR3/2) clay; common fine distinct strong brown (7.5YR5/8) mottles; massive; very firm, very sticky, very plastic; common fine roots; patchy organic matter coatings; medium decayed roots; patchy organic matter coatings; extremely acid (field pH 4.0-4.5); clear, wavy boundary.
Bjg	40-90	Brown (7.5YR5/2) clay; many medium and coarse distinct strong brown (7.5YR5/8) mottles; many streaks of jarosite yellow (2.5YR8/6); massive; very firm, very sticky, very plastic; many medium decayed roots; patchy organic matter coatings; extremely acid (field pH 4.0); clear, wavy boundary.
BCg	90-135	Brown (7.5YR5/2) nearly ripe clay; few fine faint brown (7.5YR4/4) and distinct strong brown (7.5YR5/6) mottles; massive; very sticky, very plastic; many medium decay roots; very strongly acid (field pH 4.5); abrupt, irregular boundary.
Cg1	135-250	Gray (5Y5/1) half ripe clay; massive; very sticky, very plastic; very strongly acid (field pH 4.5)
Cg2	250-350	Gray (5Y5/1) unripe to nearly unripe clay; few decomposed plant residues; slightly acid (field pH 6.5)

Remark: At the depth below 200 cm soil were sampled by auger

Pedon No. 1 from *Characteristics of Some Acid Sulphate Soils in Thailand in the tour guide for 2nd Symposium on Acid Sulphate Soils in Thailand*, 18-24 January, 1981, Bangkok, Thailand, Soil Survey Division, Department of Land Development, Bangkok, Thailand

Type Location: Name of Amphoe, Amphoe Thanyaburi Changwat Pathum Thani.

Range of Profile Features:

The A horizon is from 20 to 30 cm thick, has 10YR hue, values of 2 or 3 and chroma of 1. Structure is weak prismatic breaking to blocky and field pH values range from 4.0 to 5.0.

The B horizon has values of 4 to 6 and chroma of 2 in 10YR hue and value of 5 and chroma of 2 in 7.5YR hue. Structure is moderate coarse prismatic breaking to moderate fine and medium blocky and field pH values are 4.5 or less.

The C horizon is composed of clay rich in undecomposed organic material, has hue of 10YR or 2.5Y, values of 4 or 5 and chroma 1. Few grayish brown mottles may occur in the upper layer and field pH is 4.5 rising to 6.0 or more below 2 m depth.

Similar Soil Series:

Rangsit series (Rs): has a similar profile, but contains prominent red mottles in the B horizon.

Ongkharak series (Ok): has jarosite mottles within 50 cm of the soil surface.

Sena series (Se): has a similar profile, but contains prominent red mottles and gypsum in the B horizon.

Ayuthaya series (Ay): contain gypsum and prominent red mottles in B horizon and jarosite mottles occurs below 1 m from the soil surface.

Maha Phot series (Ma): contains prominent red mottles in B horizon and jarosite mottles below 1 m from the soil surface.

Principal Associated Soil: These include Ongkharak, Rangsit and Maha Phot series which occupy similar positions on the former tidal flats.

Remarks: This series was originally mapped as Rangsit series, yellow mottled variant.

ANALYSIS RESULTS

Profile code No. 1

(oven dry basis)

Soil series : Thanyaburi (Tan)

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				
33819	0-7	Apg1	1.0	35.4	63.6							c	c	4.1	3.5		15.0	363
22820	7-22	Apg2	0.5	34.5	65.0							c	c	3.9	3.3		15.0	250
33821	22-40	Bg	1.8	35.6	62.6							c	c	3.6	3.1		6.0	281
33822	40-90	Bjg	4.7	32.0	63.3							c	c	3.4	2.8		1.0	343
33823	90-135	BCg	1.3	34.2	64.5							c	c	3.4	2.9		14.0	437
33824	135-250	Cg1	1.6	27.2	71.2							c	c	3.7	3.3		41.0	554
33825	250-300	Cg21	1.5	31.0	67.5							c	c	4.7	4.2		31.0	647
33826	300-350	Cg22	1.1	32.7	66.2							c	c	5.7	5.2		38.0	663

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)				
				0-7		3.1	0.27	9.09	8.19	0.93	3.10	21.31	25.37	46.68	26.48			
7-22		2.4	0.26	6.36	7.21	0.64	2.50	16.71	26.38	43.09	27.63	42.5	60	39			3.23	
22-40		0.6	0.09	6.23	8.20	0.72	2.90	18.05	22.85	40.90	22.99	36.7	79	44			2.96	
40-90		0.3	0.04	5.51	8.22	0.88	3.50	18.11	22.51	40.62	23.91	37.8	76	45			2.65	
90-135		1.0	0.05	5.51	10.13	1.12	1.00	17.76	23.52	41.28	27.03	41.9	66	43			4.34	
135-250		2.5	0.06	6.66	13.86	1.42	2.50	24.44	19.82	44.26	27.90	39.2	88	55			5.08	
250-300		2.2	0.06	9.26	22.07	1.66	5.00	37.99	13.44	51.43	25.39	37.6	100	74			8.32	
300-350		2.2	0.06	9.74	23.16	1.70	8.00	42.60	10.58	53.18	25.77	38.9	100	80			8.69	