

Proposed by: C. Changprai, 1970
Revised by:
1. N. Chorphaka, 1988
2. P. Wiwatwongwana, 2004

THA PHON SERIES

Field Symbol: Tn

Distribution: Occupies small extent in the Central Highland mainly in the western part of the north Pa Sak valley.

Setting: Tha Phon soils are formed from recent alluvium and occur on the alluvial fan mostly from andesite and basalt. Relief is level to nearly level. Slopes are 2% or less. Elevation ranges from 70 to 140 m above sea level. The climate is Tropical Savanna (Koppen 'Aw'). Annual precipitation ranges from 612 to 1,645 mm.

Drainage and Permeability: Somewhat poorly drained. Moderate permeability and slow runoff. Flooding by impounded rainwater to depths of up 30 cm occurs for three to four months during the rainy season. Groundwater level falls below 3 m from the soil surface during the peak of the dry season.

Vegetation and Land Use: Mainly used for transplanted rice. Tobacco and vegetables many be grown in the dry season if local irrigation water is available.

Characteristic Profile Features: Tha Phon series is a member of the fine, mixed, superactive, nonacid, isohyperthermic Aeric Tropaquepts. They are very deep, slightly acid to mildly alkaline soils and are characterized by a very dark brown or dark brown silty clay loam or clay A horizon which overlies a dark reddish brown or dark reddish gray silty clay or clay B horizon. The soils are mottled throughout with strong brown or dark brown mottles as coatings along root channels and pores in the A horizon and faint, predominantly reddish brown mottles in the subsoil.

Typifying Pedon: Profile code no. is NC-47/119 (moist colours unless otherwise stated).

Location: Between Ban Dong-Ban Khlong Manao, Ban Dong, Tambon Tha Phon, Amphoe Muang Changwat Phetchabun.

Sheet Name: Ban Tha Phon

Sheet No.: 5242 III

Coordinate: 312313

Elevation: 133 m (MSL)

Relief: level

Slope: <1 %

Physiography: alluvial fan

Parent material: alluvium derived from andesite and basalt

Drainage: somewhat poorly drained

Permeability: slow

Runoff: slow

Ground water depth: >2 m

Flooding depth: -

Duration: -

Frequency: -

Annual rainfall: 1,124.7 mm

Mean temp.: 27.2 °C

Climate type: Tropical Savannah (Aw)

Natural vegetation or land use: Rice in the rainy season, tobacco and Mung bean in the dry season

Described by: N.Chawpaka, B.Boonsompoppunth and P.Attanatk

Date: 16 May, 1983

Revised by: Phusit Wiwatwongwana

Date: 26 May, 2004

Horizon	Depth (cm)	Description
Ap	0-24	Dark reddish gray (5YR4/2) silty clay; common fine distinct strong brown (7.5YR5/6) mottles; moderate fine and medium subangular blocky structure; very hard firm, sticky, plastic; common fine and many very fine roots; moderately alkaline (field pH 8.0); clear, smooth boundary.
AB	24-60	Dark gray (5YR4/1) silty clay, few fine distinct strong brown (7.5YR5/6) mottles; massive; very firm, sticky, plastic; few very fine roots; moderately alkaline (field pH 8.0); clear, smooth boundary.
Bw1	60-104	Dark reddish gray (5YR4/2) silty clay; few fine distinct strong brown (7.5YR5/6) mottles; moderate coarse angular blocky structure; firm, sticky, plastic; few

very fine roots; common pressure faces; moderately alkaline (field pH 8.0); gradual, smooth boundary.

Bw2 104-142 Reddish gray (5YR5/2) silty clay; few fine distinct strong brown (7.5YR5/6) mottles; moderate coarse angular blocky structure; firm, sticky, plastic; few very fine roots; common pressure faces; moderately alkaline (field pH 8.0); clear, smooth boundary.

Bw3 142-187+ Reddish gray (5YR5/2) silty clay; common fine distinct yellowish red (5YR4/6) mottles; weak coarse angular blocky structure; firm, sticky, plastic; common pressure faces; moderately alkaline (field pH 8.0).

Range of Profile Features:

The A horizon is from 15 to 30 cm thick, has 10YR or 7.5YR hues, values of 2 through 4 and chromas of 2 through 4. Structure is weak to moderate, coarse or medium blocky. Field pH values range from 6.0 to 7.0.

The B horizon has 5YR hue, values of 2 through 5 and chromas usually 2 or occasionally 3. Structure is moderate, medium or coarse blocky. Field pH values range from 6.5 to 8.0. Silty clay loam texture may occur in the upper B.

Similar Soil Series:

Lom Sak series (La): has 10YR and 7.5YR hues in the subsoil, is in fine-silty family, and occur on flood plain.

Principal Associated Soils:

These include Lom Sak and Ratchaburi series. the former occupying similar positions on the semi-recent terrace and the latter occurring on the flood plain.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: NC-47/119
Soil series: Tha Phon (Tn)

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 ⁿ	water			
6-15228	0-24	Ap	2.4	47.0	50.6						sic	sic	5.7	4.9	20.5	65
6-15229	24-60	AB	2.5	48.3	49.2						sic	sic	6.5	5.3	20.8	41
6-15230	60-104	Bw1	3.0	53.5	43.5						sic	sic	6.8	5.2	28.1	37
6-15231	104-142	Bw2	4.3	55.1	40.6						sic	sic	6.2	5.0	35.2	34
6-15232	142-187	Bw3	4.8	49.3	45.9						sic	sic	5.9	5.3	32.3	38

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol _(c) kg ⁻¹)										Base satur ⁿ (%)		ECEC cmol _(c) kg ⁻¹ (B+D)	Al KCl extr. cmol _(c) 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)				
0-24	9.0	1.56		25.20	7.80	0.20	0.70	33.90	9.00	42.90	37.4	73.9	91	79			0.59	
24-60	9.0	1.14		27.10	7.80	0.10	0.70	35.70	5.50	41.20	35.5	72.2	100	87			0.36	
60-104	8.8	0.57		25.50	7.30	0.10	0.80	33.70	5.40	39.10	33.8	77.7	100	86			0.38	
104-142	8.4	0.60		25.40	7.00	0.10	0.90	33.40	5.00	38.40	32.6	80.3	100	87			0.49	
142-187	8.5	0.75		26.20	7.00	0.10	0.90	34.20	4.30	38.50	34.2	74.5	100	89			0.47	