

Proposed by F.R. Moormann, 1963
Revised by:
1. C. Changprai, 1987
2. S. Udomsri, 2004

THA MUANG SERIES

Field Symbol: Tm

Distribution: Occupies moderate extent in total for all Thailand mainly in western part of the central part with the exception of Peninsular and Southeast Coastal. They occurring along streams and river to a greater or lesser extent in most regions.

Setting: Tha Muang soils are formed from recent alluvium and occur on the floodplains which higher parts of river and stream levees. Relief is flat to nearly flat with an undulating micro-relief where movement of stream channels has occurred. Slopes are about 1-5%. The climate is Tropical Savanna (Köppen 'Aw'). Mean annual temperature is 27°C.

Drainage, Permeability and Surface Runoff: Moderately well drained to well drained. Permeability and runoff are moderate due to micro-relief. These soils may be subject to short periods of flash flooding by river water. Groundwater level is above 1 m from the soil surface during the rainy season; but falls below 1.5 m during the dry season.

Vegetation and Land Use: Mainly used as settlement sites, vegetable gardens and orchards. Tobacco is also grown on these soils in the northern province.

Characteristic Profile Features: Tha Muang series is a member of the Coarse-loamy, mixed, active, calcareous, isohyperthermic Typic Ustifluvents. They are deep, medium acid to neutral soils and are characteristically stratified. Textures are variable, clay loam, sandy clay loam, sandy loam, loam and silt loam; but fall in the coarse-loamy particle size class in the control section (weighted average 25 cm to 1 m). Colours are brown, dark brown, yellowish brown or grayish brown in the A horizon, and predominantly brown or yellowish brown in the C horizon. Fine, indistinct mottles commonly occur in the C horizon, usually at some depth below 50 cm and within 1 m of the soil surface. Visible mica flake usually occur throughout the profile and the soils react with HCl.

Typifying Pedon: Profile code number is 14

Location: west pond of Agricultural Extension, Amphoe Ban Phong Changwat Ratchaburi.

Sheet Name: Amphoe Ban Pong

SheetNo.: 4936 I

Coordinate: -

Elevation: 10 m MSL.

Relief: gently undulating

Slope: 2 %

Physiography: flood plains (levees)

Parent material: alluvium

Drainage: well drained

Permeability: rapid

Runoff: slow

Ground water depth: > 2 m

Flooding depth: - cm

Duration: - month

Frequency: every year

Annual rainfall: 1,301.5 mm

Mean temp: 27.3 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: cropland

Other:

Described by: W.Silichauychoo, C.Changprai,
C.Manotham and C. Niamskul

Date: 27 May, 1983

Revised by: S. Udomsri

Horizon	Depth (cm)	Description
A	0-28	Yellow (10YR7/6) fine sandy loam, dark yellowish brown (10YR4/4 moist); weak very coarse subangular blocky parting to weak fine to medium subangular blocky structure; hard, friable, nonsticky, nonplastic; common fine roots; strongly effervescent; moderately alkaline (field pH 8.0); clear, smooth boundary.

AC	28-53	Brownish yellow (10YR6/6) loamy sand, dark yellowish brown (10YR4/4 moist); weak very coarse subangular blocky parting to weak fine to medium subangular blocky structure; soft, friable, nonsticky, nonplastic; few very fine to fine and few coarse roots; strongly effervescent; moderately alkaline (field pH 8.0); gradual, smooth boundary.
C1	53-73	Very pale brown (10YR7/4) loamy sand, yellowish brown (10YR5/4 moist); weak very coarse subangular blocky parting to weak fine to medium subangular blocky structure; soft, friable, nonsticky, nonplastic; common fine and few roots; strongly effervescent; moderately alkaline (field pH 8.0); clear, wavy boundary.
C2	73-84	Yellowish brown (10YR5/4) sand, dark yellowish brown (10YR4/4 moist); loose, nonsticky, nonplastic; common fine and few medium roots; strongly effervescent; moderately alkaline (field pH 8.0); clear, smooth boundary.
C3	84-115	Brownish yellow (10YR6/6) loamy sand, yellowish brown (10YR5/6 moist); weak fine to medium subangular blocky structure; very friable, nonsticky, nonplastic; few fine roots; strongly effervescent; moderately alkaline (field pH 8.0); gradual, smooth boundary.
C4	155-200	Brownish yellow (10YR6/6) loamy sand; weak medium to coarse subangular parting to structureless; very friable, nonsticky, nonplastic; few fine roots; strongly effervescent; moderately alkaline (field pH 8.0).

Remark: Pedon No. 14 from *Benchmark Soils of Thailand*. Lek Moncharoen, T. Vearasilp and H. Eswaran. 1987. Department of Land Development, Thailand. and Soil Management Support Services, USA.

Type Location: Name of Amphoe, Amphoe Tha Muang Changwat Ratchaburi.

Range of Profile Features:

The A horizon varies in thickness from 10 to 40 cm. Has 10YR or 7.5YR hues, values of 3 to 5 and chromas of 2 to 4. Structure is weak, fine to medium blocky and may be crumb in places. Field pH values range from 5.5 to 6.5.

The C horizon has 10YR or 7.5YR hues, values of 4 or 5 and chromas of 3 to 6 in 10YR and 2 to 4 in 7.5YR. Structure is weak, medium and fine blocky or single grained in some places, and field pH values range from 6.0 to 7.0.

Similar Soil Series:

Sanphaya series (Sa): has a cambic B horizon and inverted gley in upper A horizon. Mottles founded throughout profiles.

Chiang Mai series (Cm): has a similar profile, but without reaction with HCl.

Kamphaeng Saen series (Ks): has a developed argillic B horizon and member of fine-silty family.

Ruso series (Ro): has a developed argillic B horizon with founded in udic moisture regime and chromas of 6 or 8 in subsoil and lower pH values.

Principal Associated Soils: These include Sapphaya and Ratchaburi series occupying lower positions on levees and breach deposits.

ANALYSIS RESULTS

Profile code No. 14

(oven dry basis)

Soil series : Tha Muang (Tm)

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			
	0-28	A	52.7	35.4	11.9			0.3	11.6	40.8	sl	fsl	7.7	7.5			
	28-53	AC	67.8	22.8	9.4			0.3	23.8	43.7	ls	ls	8.1	7.5			
	53-73	C1	76.7	16.4	6.9		0.1	1.8	41.1	33.7	ls	ls	8.2	7.6			
	73-84	C2	88.9	7.1	4.0		0.2	3.9	66.2	18.6	s	s	8.2	7.6			
	84-155	C3	71.8	20.1	8.1		0.1	0.6	30.4	40.7	ls	ls	8.2	7.6			
	155-200	C4	77.8	15.7	6.5	0.3	1.1	9.6	34.5	32.3	ls	ls	8.2	7.7			

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol _(c) kg ⁻¹)								Base satur ¹ (%)		ECEC cmol _(c) kg ⁻¹ (B+D)	Al KCl extr. cmol _(c) kg ⁻¹ (D)	Electrical conduct ² (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)
				0-28		0.79	0.06		0.70	0.20		0.90					0.90
28-53		0.37	0.03		0.80	0.10		0.90		0.90	5.00	53.2					
53-73		0.22	0.02		0.60	0.10		0.70		0.70	3.60	52.2					
73-84		0.17	-		0.50	0.10		0.60		0.60	2.40	60.0					
84-155		0.24	-		0.90	0.10		1.00		1.00	4.10	50.6					
155-200		0.24	-		0.90	0.10		1.00		1.00	3.60	55.4					