Proposed by: N. Chorphaka, 1988
Revised by: A. Potichan, 2004

MAE THA SERIES — Field Symbol: Mta

Distribution: Occupies small extent in the Northern part of Thailand.

Setting: Mae Tha soils are formed from alluvium and occur on semi-recent terraces. Relief is level to nearly level which slopes are 2% or less. The climate is Tropical Savanna (Koppen 'Aw'). The average annual precipitation range from 1,100 to 1,800 mm.

Drainage, Permeability and Runoff: Somewhat poorly drained. Permeability and surface runoff are slow.The soils are usually flooded by impounded rain water during the rainy season.

Vegetation and Land Use: Used for transplanting rice in the wet season and some upland crops in the dry season under irrigation.

Characteristic Profile Features: Mae Tha series is a member of fine-silty, mixed, superactive, isohyperthermic Aeric Endoaqualfs. They are very deep soil and characterized by a dark brown to brown grayish brown silt loam or loam A horizon overlying a reddish brown to light reddish brown silt loam or silty clay loam grading to silty clay or clay argillic B horizon. Common to many distinct strong brown, yellowish brown and yellowish red mottles occur throughout the profile. Reaction is very strongly acid to moderately acid and over strongly acid to moderately alkaline.

Typifying Pedon: Profile code no. is NC-44/150 (moist colors unless otherwise stated).

Location: Ban Bung Kradan, Tambon Ban Pa, Ampoe Muang Changwat Phitsanulok.

Sheet Name: Changwat Phitsanulok — **Sheet No.:** 5042 I
Coordinate: - — **Elevation:** -
Relief: level — **Slope:** 0-1 %
Physiography: semi-recent terraces
Parent material: alluvium
Drainage: somewhat poorly drained — **Permeability:** slow
Runoff: slow — **Ground water depth:** >2 m
Flooding depth: 30-40 cm — **Duration:** 3-4 month — **Frequency:** every year
Annual rainfall: 1,351.9 mm — **Mean temp.:** 27.5 ^{o}C — **Climate type:** Tropical Savannah (Aw)
Natural vegetation or land use: paddy field
Described by: P. Attanath & N. Chorphaka — **Date:**
Revised by: Aniruth Potichan — **Date:** 25 May, 2004

Horizon	Depth (cm)	Description
Ap	0-25	Pinkish (7.5YR6/2) silt loam; common fine and medium distinct strong brown (7.5YR5/8) mottles; moderate fine and medium subangular blocky structure; slightly sticky and plastic; many very fine roots; moderately acid (field pH 6.0) clear and smooth boundary.
Btg1	25-49	Brown (7.5YR5/2) silt loam; common medium distinct yellowish red (5YR5/8) and strong brown (7.5YR5/6) mottles; moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; patchy moderately thick clay coatings in pores; few very fine roots; few fine soft MnO_2 nodules; moderately alkaline (field pH 8.0); clear and smooth boundary.
Btg2	49-81	Reddish brown (5YR4/4) coated by pinkish gray (5YR6/2) silt loam; common fine and medium distinct yellowish red (5YR5/6) mottles; moderate medium and coarse subangular blocky structure; firm, sticky and plastic; continuous moderately thick clay coatings on ped faces and in pore; very few very fine roots; common fine soft MnO_2 nodules; moderately alkaline (field pH 8.0); clear and smooth boundary.

Btg3	81-110	Reddish brown (5YR4-5/4) coated by gray (5YR5/2) silt loam; common fine and medium distinct yellowish red (5YR5/6) mottles; moderate coarse subangular blocky structure; firm, sticky and plastic; continuous moderately thick clay coatings on ped faces and in pores; common fine soft MnO_2 nodules; moderately alkaline (field pH 8.0); clear and smooth boundary.
Btg4	110-165	Reddish brown (5YR5/4) coated by reddish gray (5YR5/2) silt loam; common fine and medium distinct red (2.5YR5/6) and yellowish red (5YR5/8) mottles; moderate coarse subangular blocky structure; firm, sticky and plastic; continuous moderately thick clay coatings on ped faces and in pores; common medium soft and hard MnO_2 nodules; moderately alkaline (field pH 8.0); clear and smooth boundary.
Btg5	165-180+	Reddish brown (5YR5/4) coated by reddish gray (5YR5/2) loam; common fine and medium distinct yellowish red (5YR5/8) mottles; moderate medium and coarse subangular blocky structure; friable, slightly sticky and slightly plastic; patchy thin clay coatings in pores; common medium soft and hard MnO_2 nodules; moderately alkaline (field pH 8.0).

Type Location:

Mae Tha series was named for Amphoe Mae Tha, Changwat Lampang in which soils of this series were first described.

Range of Profile Features:

The thickness of an A horizon varies from 15 to 30 cm and has 7.5YR or 10YR hues, values of 3 to 6 and chromas of 2 to 4. Structure is moderate fine and medium subangular blocky. Field pH ranges from 5.0 to 6.0.

The upper argillic B horizon has 5YR hue, values of 4 to 6 and chromas of 3 to 4. The lower argillic B horizon has 5YR hue, values of 4-6 and chroma 2 or less. Structure is moderate medium and coarse subangular blocky. Field pH values range from 5.5 to 8.0.

Motlles are strong brown and yellowish red throughout the profile. Red or yellowish red plinthite may also occur in subsoil but less than 5 percent by volume.

Similar Soil Series:

Mae Sai series (Ms): has a similar profile but browner color with hue of 10 YR and 7.5YR.

Nan series (Na): has a similar profile but grayer color.

Uttaradit series (Utt): has similar colors but is in fine particle size class.

Principal Associated Soils:

These include Nan and Uttaradit series.

ANALYSIS RESULTS

(oven dry basis)

Profile code no.: NC-44/150

Soil series: Mae Tha (Mta)

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_4OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim^{n}	water	KCl			
712191	0-25	Ap	29.4	62.1	8.5	0.0	0.1	0.2	0.2	28.9	sil	sil	5.2	3.6		5.2	25
712192	25-49	AB	33.6	56.0	10.4	0.1	0.1	0.3	7.2	25.9	sil	sil	8.3	6.7		1.6	23
712193	49-81	Bt1	26.6	52.3	21.1	0.3	0.4	0.3	0.2	25.4	sil	sil	8.8	6.8		1.6	37
712194	81-110	Bt2	14.4	59.3	26.3	0.0	0.2	0.3	4.6	9.3	sil	sil	8.5	6.7		3.3	41
712195	110-165	Bt3	16.5	58.7	24.8	0.2	0.3	0.4	0.3	15.3	sil	sil	8.4	6.4		2.8	42
712196	165-180	Bt4	51.6	31.4	17.0	0.1	0.3	0.2	14.3	36.7	l	l	8.4	6.7		3.0	34

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 condut^{y} ($ECx10^{6}$) dS m^{-1}
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH_4OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/ (B+A)			
0-25	0.4	0.73		1.40	0.60	0.10	0.30	2.40	4.60	7.00	4.8	56.5	50	34			0.11
25-49	1.1	0.18		3.60	1.40	0.10	1.50	6.60	1.40	8.00	6.7	64.4	99	83			0.18
49-81	1.6	0.10		5.60	3.20	0.10	4.00	12.90	1.10	14.00	12.5	59.2	100	92			0.43
81-110	3.4	0.15		7.70	4.50	0.10	5.40	17.70	1.40	19.10	16.9	64.3	100	93			0.54
110-165	3.1	0.10		7.70	4.30	0.10	4.50	16.60	1.20	17.80	15.6	62.9	100	93			0.46
165-180	2.3	0.04		6.20	3.20	0.10	2.50	12.00	0.90	12.90	10.8	63.5	100	93			0.29

Surveyor: P. Attanath & N. Chorphaka