

Proposed by: W. Van der Kevie, 1965
Revised by:
1. C. Changprai, 1987
2. S. Udomsri, 2004

BAN MI SERIES

Field Symbol: Bm

Distribution: Small extent in the Central Plain and in the Central Highlands with limestone nearby

Setting: Ban Mi soils are formed from alluvium which high in montmorillonitic clays. They occur on alluvial plain or along the boundary between terraces and the recent alluvial plain which have limestone nearby. Relief is nearly flat with slopes of less than 2 %. Elevation ranges from 4-20 m above sea level. The climate is Tropical Savanna (Köppen 'Aw'). Annual precipitation ranges from 1,000 mm to 1,400 mm. Mean annual temperature is 27° C.

Drainage and Permeability and Surface Runoff: Poorly drained. Runoff and permeability are slow. These soils are flooded by impounded rainwater or river to depths of 30-40 cm for three to four months during the wet season. Sometimes this area flooded by irrigation. However, these soils also dry out deeply with groundwater level falling below 2 m during the peak of the dry season when deep wide cracks usually occur.

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

Characteristic Profile Features: The Ban Mi series is a member of the Very-fine, smectitic, isohyperthermic Ustic Epiaquerts. They are deep, slightly acid to neutral soils and are characterized by a thick, dark coloured A horizon overlying a slightly paler subsoil containing predominantly dark yellowish brown mottles and some secondary lime concretions appear in the lower B horizons. The occurrence of slickensides is characteristic. Cracks are at least 1 cm wide at 50 cm depth.

Typifying Pedon: Profile code number is Code C-4/11

Location: Ban Don Yo, Tambon Ban Mo, Amphoe Ban Mo Changwat Saraburi.

Sheet Name: Amphoe Tha Ruea

Sheet No.: 5138 III

Coordinate: 156854

Elevation: 8 m (MSL)

Relief: level to nearly level

Slope: 0-1%

Physiography: alluvium plain

Parent material: alluvium

Drainage: poorly drained

Permeability: slow

Runoff: slow

Ground water depth: >2 m

Flooding depth:- cm

Duration: rainy season

Frequency: every year

Annual rainfall: 1,211.9 mm

Mean temp: 28.1 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: paddy field

Other:

Described by: Kevie, Banchong and Maitri

Date: 12 May, 1970

Revised by: S. Udomsri

Horizon	Depth (cm)	Description
Apg1	0-10	Dark gray (10YR4/1) heavy clay; many fine prominent yellowish red (5YR5/8) mottles as coatings along root channels and on ped faces; strong fine angular blocky structure, granular in upper 2 cm; hard; many very fine tubular pores; common very fine roots; strongly acid (field pH 5.5); clear, wavy boundary.
Apg2	10-26	Dark gray (10YR4/1) heavy clay; many fine and medium prominent yellowish red (5YR5/8) mottles as coatings along root channels and on ped faces; moderate coarse angular blocky structure breaking to small blocks; firm; common pressure faces; common very fine tubular and very fine and fine interstitial pores; common very fine roots; slightly acid (field pH 6.5); clear, smooth boundary.

Bssg1	26-70	Dark gray (10YR4/1) heavy clay; many medium and coarse distinct dark yellowish brown (10YR4/4) mottles; weak to moderate coarse angular blocky structure; many pressure faces and common intersecting slickensides; many very fine interstitial and few very fine tubular pores; common fine manganese nodules; common fine and very fine roots; neutral (field pH 7.0); gradual, smooth boundary.
Bssg2	70-160	Dark gray (5Y4/1) heavy clay; many fine and medium distinct brown (10YR4/3) mottles; weak to moderate medium angular blocky structure; firm; many intersecting slickensides; common very fine interstitial pores; common fine manganese nodules and secondary lime concretions in the deeper part; moderately alkaline (field pH 8.0).
Ck	160-250	Brown (10YR4/3) clay; common medium distinct dark brown (7.5YR4/4) mottles common fine manganese nodules and fine calcite crystals; moderately alkaline (field pH 8.0).

Type Location: Name of Amphoe, Amphoe Ban Mi Changwat Lop Buri.

Range of Profile Features:

The A horizon is from 20 cm to 40 cm thick, has very dark gray to dark gray (10YR 3-4/1) and has a strong fine blocky structure becoming granular in the uppermost layer. Field pH ranges from 5.5 to 6.5.

The upper B horizon has hues of 7.5YR or 10YR values of 3 to 4 and chromas of 2 or less. Structure is weak to moderate blocky, prismatic or massive, breaking to blocky. Field pH values range from 5.0 to 6.5.

The B horizons has matrix colours are dark gray becoming gray in the deeper layers. Hues range from 10YR to 5Y. which contains brownish yellow and yellowish brown mottles. Field and pH values range from 6.5 to 7.0 in the upper B horizon; but below approximately 1 m pH values may increase to 8.0. Lime concretions, when found, are restricted to the deeper layers below approximately 1 m from the soil surface.

Similar Soil Series:

Wathana series (Wa): is derived from basalt, limestone and andesite and dries out for longer periods

Chong Khae series (Ck): has lower values and pH and characteristic fine red mottles.

Lop Buri series (Lb): has well drained soils.

Principal Associated Soils: These include Lop Buri series soils which occupy higher positions and are better drained, and Chong Khae series soils which occupy similar positions on the lower parts of the plains.

ANALYSIS RESULTS
(oven dry basis)

Profile code No. : C-4/11
Soil Series: Ban Mi (Bm)

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				
Pa -494	0-10	Apg1	3.0	29.0	68.0							c	c	5.4	3.9	1.8	7.1	286
Pa -495	10-26	Apg2	2.0	29.0	69.0							c	c	5.4	3.6	1.9	5.5	193
Pa -496	26-70	Bssg1	1.5	26.0	72.5							c	c	7.0	4.9	1.8	4.3	131
Pa -497	70-160	Bssg2	6.0	21.5	72.5							c	c	8.3	6.6	5.5	9.1	119
Pa -498	160-250	Ck	9.5	25.5	65.0							c	c	7.9	7.2	5.1	15.8	113

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹)								Base satur ¹ (%)		ECEC cmol ₍₊₎ kg ⁻¹ (B+D)	Al KCl extr. cmol ₍₊₎ kg ⁻¹ (D)	Electrical conduct ¹ (ECx10 ⁶) dS m ⁻¹			
				Ca		Mg		K		Na		SUM	CEC				CEC	B/Cx100	(Bx100)/
				(B)	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)	(A)				(B)	(A)	(B)
0-10	6.6	1.38	0.21	27.30	0.50	0.70	0.70	29.20	17.20	46.40	50.00	73.5	58	63			0.07		
10-26	6.8	0.77	0.15	29.80	0.50	0.40	0.90	31.60	14.20	45.80	49.70	72.0	64	69			0.05		
26-70	8.0	0.35	0.08	35.90	0.50	0.30	1.30	38.00	8.50	46.50	51.80	71.4	73	82			0.03		
70-160	8.1	0.22	0.06	45.70	0.70	3.20	3.60	53.20	4.30	57.50	53.30	73.5	100	93			0.09		
160-250	7.9	0.13	0.05	80.60	0.90	0.20	9.50	91.20	2.90	94.10	46.80	72.0	100	97			1.00		