

Proposed by: W. Van der Kevie, 1967
Revised by:
1. C. Changprai, 1987
2. S. Udomsri, 2004

DOEM BANG SERIES

Field Symbol: Db

Distribution: Occupies moderate extent along the northern and western borders of the Central Plain.

Setting: Doem Bang soils are formed from alluvium and occur on the low lying parts of local, coalescing alluvial fans or terraces. Relief is flat or nearly flat with slopes are 2% or less. The climate is Tropical Savanna (Köppen 'Aw'). Annual precipitation ranges from 900-1,400 mm. Mean annual temperature is 27 °C.

Drainage and Permeability and Surface Runoff: Somewhat poorly drained to poorly drained. Runoff is slow and permeability is moderate to slow. These soils are flooded by impounded rainwater or river to depths of about 30 cm for four months during the rainy season. Sometimes this area flooded by irrigation. Groundwater level falls below 2 m from the soil surface during the peak of the dry season.

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

Characteristic Profile Features: Doem Bang series is a member of the Fine, kaolinitic, isohyperthermic Aeric (Plinthic) Endoaqualfs. They are deep, strongly to medium acid over neutral to mildly alkaline soils. They are characterized by a dark grayish brown, or grayish brown sandy loam to sandy clay loam or clay loam with distinct sand fraction A horizon, overlying a brown, yellowish brown or light olive brown clay loam subsurface. This in turn overlies a grayish brown, light brownish gray or light gray clay argillic B horizon. These soils are mottled throughout with strong brown and yellowish brown and/or yellowish red and red mottles. Plinthite occurs in B horizons and secondary lime nodules commonly occur in the deeper subsoil below approximately 80 cm from the soil surface.

Typifying Pedon: Profile code number is Code SW-51/50

Location: west of 50 Rm Irrigation Canal Makamthao-U Thong Road about 1 km, Ban Nong Dra Thum (I), Tambon Ban Sa, Amphoe Samchuk Changwat Suphan Buri.

Sheet Name: Amphoe Si Prachan

Sheet No.: 5038 III

Coordinate: 085242

Elevation: 13 m (MSL)

Relief: level to nearly level

Slope: 0-1%

Physiography: alluvium fan

Parent material: alluvium

Drainage: somewhat poorly drained

Permeability: slow

Runoff: slow

Ground water depth: >1.5 m

Flooding depth: - cm

Duration: 4 month

Frequency: every year

Annual rainfall: 1,112.8 mm

Mean temp: 28.2 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: paddy field

Other:

Described by: Udol

Date: 25 May, 1977

Revised by: S. Udomsri

Horizon	Depth (cm)	Description
Apg	0-17	Pinkish gray (7.5YR6/2); sandy loam; strong brown (7.5YR5/6) mottles along roots; weak fine to medium subangular blocky structure; slightly hard, friable; slightly sticky, slightly plastic; many fine roots; slightly acid (field pH 6.0) clear, smooth boundary.
Eg	17-26	Brown (7.5YR5/2); sandy loam; few fine distinct strong brown (7.5YR5/6) mottles; weak fine to medium subangular blocky structure; very friable; slightly sticky, slightly plastic; few fine roots; slightly acid (field pH 6.0); clear, smooth boundary.

BAg	26-42	Pinkish gray (7.5YR6/2); sandy clay loam; common fine prominent yellowish red (5YR5/6) mottles; weak medium to coarse subangular blocky structure; very friable, sticky, plastic; few fine roots; few fine soft laterite; strongly acid (field pH 5.0); clear, smooth boundary.
Btg1	42-72	Pinkish gray (7.5YR7/2); sandy clay loam; common medium prominent yellowish red (5YR5/6), fine medium red (2.5YR4/6) mottles; weak medium to coarse subangular blocky structure; friable, sticky, plastic; patchy thin clay coatings on ped faces; few fine roots; few fine soft laterite; strongly acid (field pH 5.5); clear, smooth boundary.
Btg2	72-93	Light brownish gray (10YR6/2); clay; common medium prominent red (10R4/6), few fine discinct strong brown (7.5YR5/8) mottles; strong coarse subangular blocky structure; very firm, very sticky, very plastic; patchy moderately thick clay coatings on ped faces; neutral (field pH 7.0); clear, smooth boundary.
Btg3	93-117	Yellowish brown (10YR5/4); clay; common fine discinct brownish yellow (10YR6/8), few fine prominent red (10R4/6) mottles; many medium to coarse subangular blocky structure; firm, very sticky, very plastic; patchy moderately thick clay coatings on ped faces; common spot of soft manganese; moderately alkaline (field pH 8.0).

Type Location: Name of Amphoe, Amphoe Doem Bang Nang Buat Changwat Suphan Buri.

Range of Profile Features:

The Ap horizon is from 10 to 20 cm thick, has 10YR hue, values of 4 or 5 and chroma of 2. Structure is weak, medium blocky and weak, fine crumb. Field pH values range from 5.0 to 6.0.

The subsurface has 10YR values of 4 or 5 and chromas of 3 or 4. Structure is moderate, coarse blocky and moderate, fine crumb; but may also be massive if a plough pan has developed. Field pH values range from 5.5 to 6.0. Few to common small and coarse hard iron/manganese nodules may occur.

The B horizon has its upper boundary within 50 cm of the soil surface, has 10YR or 2.5Y hues, values of 5 through 7 and chromas of 2 or 1. Structure is weak blocky and field pH values range from 6.0 to 8.0. Few, small and coarse, hard iron/manganese nodules may occur.

Similar Soil Series:

Nakhon Pathom series (Np): has lower values and chromas throughout the argillic B horizon.

Khao Yoi series (Kyo): has coarser textures (fine-loamy family), predominantly redder hues and without plinthite or red mottles

Principal Associated Soils: Don Chedi series is the main associated soil and formed on old creek levees or alluvial fan

ANALYSIS RESULTS

(oven dry basis)

Profile code No. : SW-51/50

Soil series : Doem Bang (Db)

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				
RA 645	0-17	Ap _g	70.8	23.9	5.3	1.8	9.3	18.4	23.9	17.4	sl	sl	5.2	4.2		3.0	32	
RA 646	17-26	E _g	66.0	24.2	9.8	3.0	10.0	18.3	20.5	14.2	sl	sl	5.6	4.2		3.0	24	
RA 647	26-42	AB _g	53.1	26.1	20.8	2.6	7.6	14.6	17.3	11.0	scl	scl	5.6	4.0		3.4	78	
RA 648	42-72	Bt _g 1	44.5	29.0	26.5	2.4	7.2	11.9	13.0	10.0	l	sc	5.8	3.8		4.6	56	
RA 649	72-93	Bt _g 2	29.4	22.6	48.0	3.0	4.5	7.3	8.4	6.2	c	c	6.3	4.7		5.1	124	
RA 650	93-117	Bt _g 3	33.3	28.9	37.8	2.1	4.3	7.6	10.0	9.3	cl	c	7.6	6.1		3.4	118	

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 ¹ (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)			
0-17	0.1	0.50		0.30	0.20	0.10	0.20	0.80	1.10	1.90	1.20	22.6	67	42			0.42	
17-26	0.1	0.50		0.60	0.30	0.10	0.30	1.30	2.80	4.10	2.70	27.6	48	32			0.06	
26-42	1.0	0.30		1.30	0.50	0.20	0.60	2.60	4.80	7.40	4.50	21.6	58	35			0.09	
42-72	0.8	0.50		1.30	0.50	0.10	0.90	2.80	6.40	9.20	6.40	24.2	44	30			0.08	
72-93	3.8	0.40		4.50	2.20	0.30	3.40	10.40	6.40	16.80	12.90	26.9	81	62			0.37	
93-117	2.4	0.30		5.20	2.70	0.30	4.10	12.30	3.30	15.60	12.30	32.5	100	79			0.64	