

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

RATCHABURI SERIES

Field Symbol: Rb

Distribution: Occupies moderate extent in the Central Plain and small extent in the North Thailand.

Setting: Ratchaburi soils are formed from alluvium and occur on the alluvial plains or river basins of flood plains. Relief is flat. Slopes are about 0-1 %. The climate is Tropical Savanna (Köppen 'Aw'). Mean annual rainfall ranges from 1,200 mm to 2,000 mm. Mean annual temperature is 27°C.

Drainage, Permeability and Surface Runoff: Somewhat poorly drained to poorly drained. Permeability and runoff are slow. These soils are flooded by river or rainwater to depths of up to 50 cm for four or five-months during the rainy season. Sometimes this area flooded by irrigation. Groundwater level falls below 1.5 m from the soil surface during the dry season.

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

Characteristic Profile Features: Ratchaburi series is a member of the Fine, mixed, active, nonacid, isohyperthermic Vertic (Aeric) Endoaquepts. They are deep, medium to slightly acid over slightly acid to neutral or moderately alkaline soils. They are characterized by a dark grayish brown or very dark grayish brown clay or silty clay A horizon, overlying a dark grayish brown, brown or dark brown clay or silty clay B horizon. These soils are mottled throughout with strong brown and yellowish brown coatings along root channels in the A horizon, and dark yellowish brown and yellowish brown mottles in the B horizon. Very fine micaflakes may coarsen throughout profile.

Typifying Pedon: Profile code number is SW-52/9

Location: Near Ban Tha Chumphon, Amphoe Photharam Changwat Ratchaburi.

Sheet Name: Changwat Ratchaburi

SheetNo.: 4936 II

Coordinate: 885129

Elevation: 6 m MSL.

Relief: level

Slope: 0-1%

Physiography: alluvial plain

Parent material: alluvium

Drainage: somewhat poorly drained to poorly drained

Permeability: slow

Runoff: slow

Ground water depth: >1.75 m

Flooding depth: - cm

Duration: -month

Frequency: -

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: Kevie and Preecha

Date: 17 May, 1971

Revised by: S. Udomsri

Horizon	Depth (cm)	Description
Apg	0-12	Brown (10YR 4/3) light clay; common fine prominent reddish yellow mottles in pores; moderate fine and medium subangular blocky structure and crumb structure in some spots; friable, slightly sticky and slightly plastic; many very fine interstitial and common very fine tubular pores; many very fine roots; moderately alkaline (field pH 8.0); clear, smooth boundary.
BAg	12-22	Brown (10YR 4/3) clay; few very fine prominent yellowish red and common medium faint dark yellowish brown mottles; weak coarse angular blocky structure; firm, sticky and plastic; thin coating on vertical ped faces and in pores; common very fine tubular pores; few very fine and fine roots; moderately alkaline (field pH 8.0); clear, smooth boundary.

Bg1	22-60	Dark grayish brown (10YR 4/2) clay; common medium distinct dark yellowish brown mottles; weak to moderate coarse subangular blocky structure; firm, sticky and plastic; thin coating in pores and on vertical ped faces; many very fine tubular pores; few very fine and fine roots; moderately alkaline (field pH 8.0); gradual, smooth boundary.
Bg2	60-115+	Dark grayish brown (10YR 4/2) clay; many medium distinct yellowish brown mottles; weak to moderate medium subangular blocky structure; firm, sticky and plastic; slickensides; few fine soft manganese concretions; many very fine tubular pores; moderately alkaline (field pH 8.0); gradual, smooth boundary.

Type Location: Name of Changwat, Changwat Ratchaburi.

Range of Profile Features:

The A horizon is from 10 to 30 cm thick, has 10YR hue, values of 3 or 4 and chromas of 3 or 2. Structure is weak to moderate, coarse and medium blocky and crumb in places. Field pH values range from 5.5 to 6.5.

The B horizon has 10YR and 7.5YR hues, values of 3 to 5 in 7.5YR and 4 to 5 in 10YR and chromas of 2 and 3 in 10YR and 2 and 4 in 7.5YR hues. Structure is moderate coarse and medium blocky and field pH values range from 6.0 to 8.0. Slickensides and few yellowish red mottles may occur in the B horizon. Few, small, spherical iron/manganese nodules may occur throughout the profile.

Similar Soil Series:

Sing Buri series (Sin): poorly drained with dominant dark gray colours and chroma of 1 throughout

Phimai series (Pm): poorly drained, with a dark gray A horizon and gray B horizon which crack deeply during the dry season.

Saraburi series (Sb): has a similar profile, but colours tend to be more yellow (10YR, 2.5Y to 5Y hues), occupy a higher position on semi-recent terraces with termite hills and are not deeply flooded.

Principal Associated Soils: These include Sing Buri and Phimai series occupying somewhat lower positions on flood plains and river basins.

ANALYSIS RESULTS
(oven dry basis)

Profile code No.: SW-52/9
Soil series: Ratchaburi (Rb)

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			
Pb-657	0-12	Apg2	2.0	53.5	44.5						sic	c	5.9	5.5	1.5	13.6	137
Pb-658	12-22	BAg	1.5	50.0	48.5						sic	c	6.5	5.9	1.5	13.6	117
Pb-659	22-60	Bg1	2.5	45.0	52.5						sic	c	6.9	6.2	1.5	10.0	93
Pb-660	60-115+	Bg2	3.5	47.0	49.5						sic	c	7.0	6.4	1.5	13.9	88

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 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)				
				0-12	4.2	1.74		17.00	2.60	0.30	0.70	20.60	7.30	27.90	27.00			
12-22	3.6	1.43		26.40	2.50	0.30	0.70	29.90	4.90	34.80	30.20	62.3	99	86			0.04	
22-60	4.0	0.98		28.50	2.30	0.20	1.00	32.00	3.20	35.20	31.20	59.4	100	91			0.06	
60-115+	3.7	0.75		22.60	2.20	0.20	0.10	25.10	2.70	27.80	25.60	51.7	98	90			0.07	