

Proposed by F.R. Moormann and staffs, 1964  
Revised by :  
P. Vijarnsorn and staffs, 1988  
Revised by W. Sirichuaychoo, 2004

## CHON BURI SERIES

Field Symbol: Cb

**Distribution:** Occupies moderate extent in Southeast Coast, Central Plain and small extent in Peninsular Thailand.

**Setting:** Chon Buri soils are formed from alluvium over marine deposits on coastal plain. Relief is level to nearly level. Slope is 2 percent or less. Elevation ranges from 10 to 40 m above mean sea level. The climate is transitional zone between Tropical Savanna (Koppen 'Aw') and Tropical Monsoon (Koppen 'Am'). Average annual precipitation is from 1,200 to 1,700 mm. Average annual air temperature is 27°C.

**Drainage, Permeability and Surface Runoff:** Drainage is poorly drained, permeability is moderate and surface runoff is slow. Ground water level falls below 1.5 m during the dry season and water stagnant at the surface during the wet season.

**Vegetation and Land Use:** Used for transplanted rice in the wet season. Parts are cultivated to vegetables during the dry season.

**Characteristic Profile Features:** The Chon Buri series is a member of the fine-loamy, mixed, semiactive, isohyperthermic Typic Endoaqualfs (Soil Taxonomy, 2003). They are very deep soils which are characterized by a dark grayish brown or grayish brown sandy loam surface or A horizon overlying a light gray, light brownish gray or pinkish gray sandy clay loam argillic B horizon. The sand fraction is medium to coarse. They are mottled throughout the profile with the colors of dark brown, dark reddish brown or yellowish red at the surface and strong brown, yellowish brown and red in the subsoil. Soils reaction is moderately acid to slightly acid, reaction values range from 6.0 to 6.5 over strongly acid to very strongly acid, reaction values range from 4.5 to 5.5.

**Typifying Pedon:** Chon Buri sandy loam - paddy field, Ban Na Pha, Tambon Na Pha, Amphoe Muang, Changwat Chon Buri, 10 m above mean sea level, less than 2 percent slopes, 70 cm ground water table depth (sheet name Amphoe Phanut Nikhom, sheet number 5235 IV, coordinate 201824).

**Profile Code Number:** SE-15/62, described by Somkid Phothong and staffs, 25 May 1981 (moist colors unless otherwise stated).

Horizon Depth (cm)	Description
Apg 0-17	Grayish brown to brown (10YR5/2-3) sandy loam; common fine distinct dark yellowish brown (10YR4/6) mottles; weak fine subangular blocky structure; friable, nonsticky and nonplastic; common fine roots; slightly acid (field pH 6.5); gradual smooth boundary.
BAg 17-32	Light brownish gray (10YR6/2) sandy loam; few fine faint light yellowish brown (10YR6/4) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few very fine roots; moderately alkaline (field pH 8.0); gradual smooth boundary.
Btg1 32-62	Light brownish gray (10YR6/2) sandy clay loam; few fine faint yellowish brown (10YR5/8) and common medium distinct strong brown (7.5YR5/8) mottles; strong medium and coarse subangular blocky structure; firm, slightly sticky and slightly plastic; patchy thin clay coating on ped faces; few fine roots; moderately alkaline (field pH 8.0); gradual smooth boundary.
Btg2 62-85	Light brownish gray to pale brown (10YR6/2-3) and krotovina of grayish brown (10YR5/2) sandy clay loam; few fine distinct strong brown (7.5YR5/6) mottles; moderate medium subangular blocky structure; firm, slightly sticky and slightly plastic; patchy thin clay coating on ped faces; few fine roots; few of manganese oxides; moderately alkaline (field pH 8.0); gradual smooth boundary.

- Btg3 85-100 Dark brown to brown (7.5YR4-5/2, color of sand) sandy clay loam; common medium distinct strong brown (7.5YR5/8) and few fine prominent red (2.5YR4/8) mottles; moderate fine subangular blocky structure; firm, slightly sticky and slightly plastic; patchy thin clay coating on ped faces; few fine roots; few of manganese oxides and iron stones; strongly alkaline (field pH 8.5); clear smooth boundary.
- Btg4 100-150 Light brownish gray (10YR6/2) sandy clay loam; few medium distinct strong brown (7.5YR5/6) and few fine faint yellowish brown (10YR5/6) mottles; moderate medium subangular blocky structure; firm, slightly sticky and slightly plastic; patchy thin clay coating on ped faces; few fine roots; few of manganese oxides; strongly alkaline (field pH 8.5).

Remark: Chon Buri series contain gluconite or marine clay in very deep subsoil, usually below 2 m from the surface.

**Type Location:**

Name of province, Changwat Chon Buri.

**Range of Profile Features:**

The surface or A or Ap horizon sandy loam texture ( sandy clay loam may occurred) varies from 10 to 40 cm thickness and has 10YR hues, values of 4 to 5 and chromas of 1 to 3. Structure is weak medium and/or coarse subangular blocky. Strongly acid to slightly acid, reaction values range from 5.5 to 6.5.

The subsurface of argillic B horizon sandy clay loam texture (sandy clay may occur in deeper subsoil) have 10YR or 7.5YR hues, values of 5 to 7 and chromas of 2 or less. Mottles of strong brown, yellowish brown and red throughout the soil profile. Structure is weak and moderate medium and/or coarse subangular blocky. Strongly acid to moderately acid, reaction values range from 5.5 to 6.0.

**Similar Soil Series:**

Roi Et series (Re): fine-loamy, mixed, active, isohyperthermic Aeris Kandiaquults, low base saturation from alluvium on alluvium plain.

Khok Khain series (Ko): fine-loamy, kaolinitic, isohyperthermic Typic Kandiaquults, low base saturation from alluvium on alluvium plain.

**Principal Associated Soils:**

These include Ban Bueng and Sattahip series. Ban Bueng and Sattahip soils occur on higher position.

Ban Bueng series: isohyperthermic, coated Oxyaquic Quartzipsamments, occurred higher position.

Sattahip series (Sh): isohyperthermic, coated Typic Quartzipsamments, has better drained and occurs on higher position. The mottles may occur in very deep subsoil (below 1 meter).

ANALYSIS RESULTS

Profile code No.: SE-15/62

(oven dry basis)

Soil series: Chon Buri series (Cb)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO <sub>3</sub> %	P, mg kg <sup>-1</sup> Bray 2	K, mg kg <sup>-1</sup> NH <sub>4</sub> OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1 water	1:1 KCl			
			sand	silt	clay	vc	c	m	f	vf	result	estim <sup>n</sup>					
4-14666	0-17	Apg	65.2	28.2	6.6	2.9	10.1	15.1	9.9	27.2	sl	sl	5.1	4.0		4.1	31
4-14667	17-32	BAG	68.1	25.9	6.0	4.3	9.4	21.0	21.0	12.4	sl	sl	6.2	4.8		1.7	24
4-14668	32-62	Btg1	62.4	19.9	17.7	5.8	12.3	15.0	28.8	0.5	sl	scl	8.5	7.3		1.3	31
4-14669	62-85	Btg2	53.5	22.6	23.9	4.5	1.0	13.7	26.6	7.7	scl	scl	7.8	6.6		2.9	32
4-14670	85-100	Btg3	50.8	25.9	23.3	5.0	9.2	11.1	10.4	15.1	scl	scl	7.2	5.8		1.4	40
4-14671	100-150	Btg4	54.3	21.8	23.9	4.4	12.7	14.8	8.0	14.4	scl	scl	8.9	7.2		1.2	45

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol <sub>(+)</sub> kg <sup>-1</sup> )								Base satur <sup>n</sup> (%)		ECEC cmol <sub>(+)</sub> kg <sup>-1</sup> (B+D)	Al KCl extr. cmol <sub>(+)</sub> kg <sup>-1</sup> (D)	Electrical conduct <sup>y</sup> (ECx10 <sup>6</sup> ) dS m <sup>-1</sup>	
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH <sub>4</sub> OAc (C)	CEC 100g Clay	B/Cx100				(Bx100)/(B+A)
0-17	0.1	0.41		0.90	0.20	0.10	0.40	1.60	1.20	2.80	1.6	24.2	100	57		0.19	
17-32	0.2	0.26		1.00	0.30	0.05	0.60	1.95	0.50	2.45	1.4	23.3	100	80		0.30	
32-62	1.4	0.09		14.10	5.00	0.80	13.50	33.40	0.40	33.80	1.7	9.6	100	99		2.10	
62-85	2.7	0.14		2.70	1.50	0.10	6.80	11.10	0.80	11.90	7.9	33.1	100	93		3.25	
85-100	2.3	0.11		2.70	1.20	0.10	5.70	9.70	1.40	11.10	7.2	30.9	100	87		1.85	
100-150	2.7	0.12		4.30	1.50	0.10	6.20	12.10	0.10	12.20	7.5	31.4	100	99		2.30	

Surveyor: S. Photong & staff

Reported by: W. Sirichuaychoo

Date: May 25, 1981

Date: Nov. 25, 1998